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# ***THE MULTIPLICATION CHANT***

AND

## **GESTURE DRILL.**

*A New and Attractive Arrangement of the Multiplication Tables  
for Primary and Kindergarten Work.*

BY

**LIZZIE STANLEY MARTYN,**

AUTHOR OF

**"Arithmetical Rules in Rhyme."**

1x1	3x7	9x9	11x11
1	21	81	121

***LIGHT AND HEAT COME FROM THE SUN.***

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Press of  
G. H. Hutchinson & Co.  
Buffalo, N. Y.

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## **PREFACE.**

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That there is nothing new under the sun is exemplified in this book, so far as the introduction of one of the old fundamental rules of arithmetic, to wit: Multiplication.

This rule being the basis of all mathematical calculations from remote time, a thorough knowledge of it, is of the utmost importance.

Therefore the difficulties ever experienced heretofore in acquiring this knowledge are not encountered here; for the author has endeavored to present a new arrangement of the multiplication tables, so attractive and so interesting, that it cannot fail to win the pupil's closest attention, while affording a certain degree of amusement.

Believing that true education proceeds only from an enthusiastic interest in the subject, handled, the study of the tables has been rendered pleasant by introducing into their construction varied colors to charm the eye, novel combinations to accelerate the



mental forces, and a rhyme at the close of each set of numbers that will not only be of assistance in memorizing, but, containing in itself a piece of useful information, be suggestive of an object lesson.

The gesture drill, explanation of which will be given before each lesson, can be made an exercise in calisthenics that will be found most enjoyable and beneficial, as it combines mental work with graceful physical development.

It will be readily understood from the plan given in this book that a thorough knowledge of the multiplication tables can be easily acquired and ever retained.

This work is adapted to the wants of Kindergarten Schools and the Primary Departments of the Grammar Schools.

It has been practically tested and has received the hearty commendations of many of the best teachers.

It is, therefore, respectfully offered to the public by the author,

LIZZIE STANLEY MARTYN.

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## INTRODUCTION TO THE DRILL.

---

We are a rule of import great,  
We drive our stakes far in;  
The foundations of a mighty structure,  
Right with us begin.

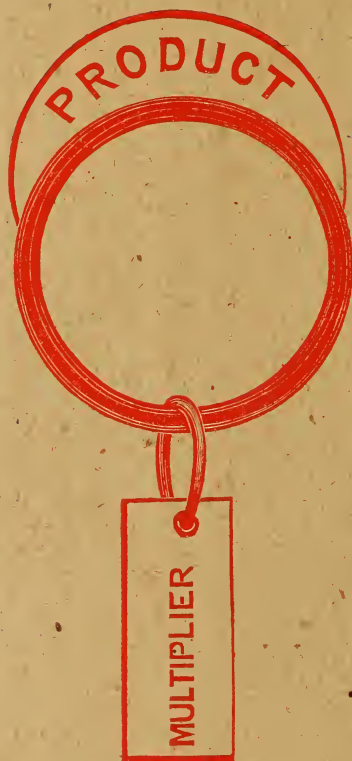
Our workmen are the busy factors  
MULTIPLIER and MULTIPLICAND;  
Multiplying them together  
Brings the PRODUCT quick to hand.

Now if we have the PRODUCT  
And one of the factors too,  
Divide and the other factor  
Comes quickly into view.

The sign we employ is this X  
We multiply what it's between,  
Calling it by the name of TIMES,  
And the PRODUCT again is seen.

We are a rule of import great,  
We drive our stakes far in;  
All mathematical problems,  
Acknowledge us as kin.

# MODEL OF THE HOOP.



## **WHAT TO USE IN THE DRILL**

---

A wooden hoop, (such as is used for embroidery) ten inches in diameter and trimmed with red, yellow and blue ribbons.

Fasten a piece of colored cardboard to the top of the hoop, on both sides of this cardboard print "PRODUCT."

Cut two pieces of cardboard, one of green, the other of red; and each two inches by eight; glue them together, then print on one side "MULTIPLIER" and on the other "MULTIPLICAND."

Fasten it loosely with a ribbon or cord to the lower part of the hoop according to the model.

## **COSTUMES.**

White costumes of any material. Red, yellow and blue sashes and white turbans.

## GESTURES OF THE INTRODUCTORY RHYME.

Stand erect, facing the audience with heads up and shoulders thrown back. Recite with earnestness and vim.

### I.

(a) Left hand down and clenched (as though holding a stake) on words "*we drive.*"

(b) Right hand down and clenched (as though driving a stake) on words "*far in.*"

(c) Wave right hand toward the ground on words "*the foundations.*"

(d) Bring right hand upward on words "*of a mighty structure.*"

(e) Right hand on breast on words "*with us.*"

### II.

(a) Right hand wave to the right on words "*our workmen.*" While the right hand makes the motion the left hand should be placed on the hoop, which can be on a wire hook at the belt.

(b) Lift up hoop from the left hand, place left hand on the multiplier on the word "*multiplier.*"

(c) Turn the cardboard and place left hand on the multiplicand on the word "*multiplicand.*"

(d) Head placed against the hoop which should be held with the right hand—the left being placed upon the cardboard pendulum on the words "*them together.*"

(e) Right hand raised with the hoop on the words "*the product.*" This motion should be an enthusiastic one.



### III.

(a) Bring right hand down slowly until the hoop is on a level with the shoulder on the words "*now if we have.*"

(b) Left hand points to one of the factors on the words "*and one.*"

(c) Draw the pendulum through the hoop on the word "*divide.*"

(d) Draw it through in such a manner that the other factor is in view, with right hand upon it; finish verse.

### IV.

(a) Slip hoop over right hand.

(b) Arms crossed upon the breast on words "*we employ.*"

(c) Take hoop from right arm on the words "*calling it.*"

(a) Take hoop from left hand on words "*and the.*"

(e) Raise hoop high up with the right hand on the word "*again.*"

Look up at the hoop with a delighted expression and recite in a most enthusiastic manner.

### V.

(a) Gestures of the first two lines the same as those of the first verse.

(b) Wave the hoop far to the right on the words "*all mathematical.*"

(c) A low bow on the word "*us.*"

(d) Right hand on breast on the word "*kin.*"

### REMARKS.

(a) It will be observed that the numbers in the colored spaces represent *all the products* of the multiplication tables.

(b) The pupils should thoroughly learn each line of the lesson before the drill is given.

(c) There is no necessity to hurry the lessons, for when they are once mastered they are mastered forever.

(d) Division can also be easily taught from the arrangement given of the multiplication tables.



## EXPLANATION OF LESSON ONE.

---

The numbers in the colored spaces represent *all the results* of the multiplication tables ending in ONE.

### DRILL.

*a* Once one is one.

"Light and heat come from the sun."

*b* Three times seven are twenty-one.

"Light and heat come from the sun."

*c* Eleven times eleven are one hundred and twenty-one.

"Light and heat come from the sun"

### GESTURES.

(*a*) In an erect standing position repeat "once one is one."

(*b*) Turn fully to the left on the word "*light*."

(*c*) Raise hands and eyes on the words "*and heat*."

(*d*) Finish rhyme in same position.

(*e*) Proceed with each line in a similar way.

### SUGGESTIONS FOR AN OBJECT LESSON.

(*a*) The distance of the earth from the sun.

(*b*) The size of the sun.

(*c*) The velocity of light, etc.

## LESSON ONE.

1x1	3x7	9x9	11x11
1	21	81	121

Light and Heat Come  
from the Sun.

**SUN.**

## EXPLANATION OF LESSON TWO.

The numbers in the colored spaces represent all the results of the multiplication tables ending in TWO.

In the line having twelve for a result repeat next line before saying the rhyme; thus  $3 \times 4$ ,  $2 \times 6$ , are 12;  $11 \times 2$  are 22.

Primary colors, red, yellow, and blue. Do not say *and* between the combinations, but  $8 \times 9$ ,  $12 \times 6$ , are 72.

## GESTURES.

*a* In an erect standing position repeat each line with its accompanying rhyme.

*b* Step back with the right foot on the word "*primary*."

*c* Lift up the right hand in which should be the hoop on the word "*colors*."

*d* Finish rhyme in same position.

Suggestions for an Object Lesson.

*a* The formation of the rainbow.

*b* The rich and varied colors of nature.

*c* The different seasons, etc.

## LESSON TWO.

	3x4				8x9	
2x1	2x6	11x2	4x8	6x7	6x12	11x12
2	12	22	32	42	72	132

Primary Colors, Red,  
Yellow and Blue.

**BLUE.**



The numbers in the colored spaces represent *all the results* of the multiplication tables ending in three.

## DRILL.

This rhyme should be repeated before each line.

## GESTURES.

*a* Step to the right on the word "honey."

*b* Raise right hand, leaning toward the right on words "is made."

*c* Finish rhyme in same position.

*d* Resume erect position and hum like a bee.

## SUGGESTIONS FOR AN OBJECT LESSON.

*a* The different industries.

*b* The three kingdoms, etc.



### LESSON THREE.

$3 \times 1$	$3 \times 11$	$7 \times 9$
3	33	63

Honey is made by the  
busy bee.

**BEE.**

## EXPLANATION OF LESSON FOUR.

---

The numbers in the colored spaces represent *all the results* of the multiplication tables ending in FOUR.

### DRILL.

Repeat each line with its accompanying rhyme.

In the line of which 15 is the result, repeat the next line before saying the rhyme.

### GESTURES.

The time step used in *Soldiery*.

### SUGGESTIONS FOR AN OBJECT LESSON.

*a* Description of a battle.

*b* The causes of war, etc.

## LESSON FOUR.

		$3 \times 8$					
$4 \times 1$		$6 \times 4$					
$2 \times 2$	$7 \times 2$	$2 \times 12$	$11 \times 4$	$9 \times 6$	$8 \times 8$	$7 \times 12$	$12 \times 12$
4	14	24	44	54	64	84	144

A body of troops is  
called a corps.

**CORPS.**

## EXPLANATION OF LESSON FIVE.

---

The numbers in the colored spaces represent *all the results* of the multiplication tables ending in FIVE.

### DRILL.

Repeat each line with its accompanying rhyme.

In the line of which 15 is the result, repeat the next line before saying the rhyme.

### GESTURES.

- a* Step and lean toward right on "the."
- b* Form a tube with both hands and lift to mouth on the syllable "tel."
- c* Finish rhyme, speaking through this tube.

### SUGGESTIONS FOR AN OBJECT LESSON.

- a* The inventions, etc.



## LESSON FIVE.

5x1	3x5	5x5	7x5	9x5	11x5
5	15	25	35	45	55

The telephone Edison  
did contrive.

**CONTRIVE.**



## EXPLANATION OF LESSON SIX.

---

The numbers in the colored spaces represent *all the results* of the multiplication tables ending in SIX.

### DRILL.

Repeat each line with its accompanying rhyme.

In the line having 16 for a result, repeat the next line before saying the rhyme.

### GESTURES.

*a* Lean toward the left on the word "*the.*"

*b* Lift left hand, in which should be a flower, on the word "*part.*"

*c* The eyes should also rest upon the flower.

*d* Finish rhyme in same position.

Suggestions for an Object Lesson.

---

*a* A lesson in botany.

## LESSON SIX.

6x1	8x2	3x12			
3x2	4x4	4x9			
		6x6	7x8	11x6	12x8
6	16	36	56	66	96

A part of a flower is  
the calix.

**CALIX.**

## EXPLANATION OF LESSON SEVEN.

The numbers in the colored spaces represent *all the results* of the multiplication tables ending in SEVEN.

### DRILL.

Repeat each line with its accompanying rhyme.

### GESTURES.

*a* Step to the right on the word "*classes.*"

*b* Raise right arm on words "*of numbers odd.*"

*c* Raise left arm, in which should be the hoop, on words "*and even.*"

*d* The figure 10 is thus formed by this gesture.

Suggestion for an Object Lesson.

The science of numbers, etc.

## LESSON SEVEN.

$7 \times 1$	$9 \times 3$	$11 \times 7$
7	27	77

Classes of numbers  
odd and even.

**EVEN.**



## EXPLANATION OF LESSON EIGHT.

---

The numbers in the colored spaces represent *all the results* of the multiplication tables ending in EIGHT.

### DRILL.

Repeat each line with its accompanying rhyme.

In the line having 18 for a result, repeat the next line before saying the rhyme.

### GESTURES.

*a* The right hand raised as though holding a cup on words "*a drink.*"

*b* Slowly pass to lips on words "*of hemlock.*"

*c* Touch the lips on the word "*fate.*"

*d* Remain in this position while mentally counting four.

### SUGGESTIONS FOR AN OBJECT LESSON.

*a* Philosophy.

*b* Philosophers.



## LESSON EIGHT.

$8 \times 1$	$3 \times 6$		$8 \times 6$		
$2 \times 4$	$2 \times 9$	$7 \times 4$	$4 \times 12$	$8 \times 11$	$9 \times 12$
8	18	28	48	88	108

A drink of hemlock  
was Socrates' fate.

**FATE.**

## EXPLANATION OF LESSON NINE.

---

The numbers in the colored spaces represent *all the results* of the multiplication tables ending in NINE.

### DRILL.

Repeat each line with its accompanying rhyme.

### GESTURES.

*a* Touch the red ribbon on the hoop on the word "*red*." Lean toward the left.

*b* Lean toward the right and touch the blue ribbon on the word "*blue*."

*c* Finish rhyme in same position.

Suggestions for an Object Lesson.

---

*a* The science of colors.

*b* Art and artists.

## LESSON NINE.

3x3			
9x1	7x7	11x9	
9	49	99	

For purple, red and  
blue combine.

**COMBINE,**

## EXPLANATION OF LESSON TEN.

---

The numbers in the colored spaces represent *all the results* of the multiplication tables ending in TEN.

### DRILL.

Repeat each line with its accompanying rhyme.

### GESTURES.

*a* Fold hands upon the breast and bow the head on the words "*the Indians' friend.*"

*b* Finish rhyme in same position.

Suggestions for an Object Lesson.

---

*a* A talk about Pennsylvania.

*b* Quakers, etc.



## LESSON TEN.

10x1			
2x5	11x10		
10	110		

The Indians' friend  
was William Penn.

**PENN.**

## EXPLANATION OF THE 'TEEN LESSON.

---

The numbers in the colored spaces represent *all the results* of the multiplication tables ending in 'TEEN.

### DRILL.

Repeat each line with its accompanying rhyme.

### GESTURES.

*a* Point to the blue ribbon on the hoop on the word "*blue*." Lean toward the left.

*b* Point to the yellow ribbon on the word "*yellow*." Lean toward the right.

Finish rhyme in same position.

Suggestions for an Object Lesson.

---

*a* Terms applied to art.

*b* Different kinds of painting, etc.

# 'TEEN LESSON.

		$8 \times 2$	$3 \times 6$
$2 \times 7$	$5 \times 3$	$4 \times 4$	$2 \times 9$
14	15	16	18

Blue and yellow make  
the green.

**GREEN.**

## EXPLANATION OF THE CIPHER LESSON.

---

The numbers in the colored spaces represent *all the results* of the multiplication tables ending in NAUGHT.

### DRILL.

This rhyme should be repeated before each line.

### GESTURES.

*a* The right hand raised with the hoop on the words "*the cipher.*"

*b* Head and hoop hanging down on words "*no rhyme is in our drill.*"

*c* Hoop raised with the right hand on words "*with naught.*"

*d* Stamp with the right foot on the word "*will.*"



# CIPHER LESSON.

10x1	10x2	10x3	10x4	10x5	10x6				10x10
5x2	5x4	5x6	5x8		5x12	10x7	10x8	10x9	
10	20	30	40	50	60	70	80	90	100

We are the cipher lesson,

No rhyme is in our drill,

But though we end in naught,

We do succeed and *will*.

## GESTURES FOR THE TWELVE NUMBERS

---

(a) The first pupil on the right of the first row says *one*, at the same time raising *gracefully* the right hand—the pupil remains in that position—while the second pupil says *two*, and raises the hand remaining in that position. In the same manner the pupils repeat the number that falls to them until the twelfth pupil says *twelve*—then all repeat the words: *By ten multiply at sight.*

(b) Raise the hoop with the left hand on the words "*a cipher.*"

(c) N. B. The gesture forms the figure ten.

(d) Begin with the next pupil and continue as before.







## QUESTIONS PERTAINING TO MULTIPLICATION.

---

- 1 What is multiplication?
- 2 What are the factors?
- 3 What is the multiplier?
- 4 What is the multiplicand?
- 5 What is the product?
- 6 What is the sign of multiplication?
- 7 What is the sign of multiplication called?
- 8 What is the proof of multiplication?
- 9 What is the answer in multiplication called?
- 10 If you have the product and the multiplier, how do you find the multiplicand?
- 11 If you have the product and multiplicand, how do you find the multiplier?
- 12 How do you find the product?
- 13 Which number do you multiply?
- 14 What is the number called that you multiply by?
- 15 In multiplying the first figure of the multiplicand by the first figure of the multiplier, where is the first figure of the result written?

16 If after multiplying the first figure of the multiplicand by the first figure of the multiplier, the result consists of two figures, what do you do?

17 What do you understand by "*carry*?"

18 What do you understand by the first figure of the multiplier or multiplicand?

19 What are the different products obtained from multiplying of the multiplicand by more than one figure called?

20 On what principle does multiplication depend?

## KEY TO QUESTIONS PERTAINING TO MULTIPLICATION.

---

1 Multiplication is the process of finding the product of two numbers.

2 The multiplier and the multiplicand.

3 The multiplier is the number that we multiply by.

4 The multiplicand is the number that we multiply.

5 The product is the result obtained by multiplying the multiplicand and multiplier together.

6 X.

7 The sign of multiplication is called "*times*".

8 One of the proofs of multiplication is the quotient of the product divided by either factor; if the result is the other factor the work is correct.

9 The answer in multiplication is called the product.

10 By dividing the product by the factor given you.

11 By dividing the product by the factor given you.

12 We find the product by multiplying the multiplicand and multiplier together.

13 We multiply the multiplicand.

14 The number that we multiply by is called the multiplier.

15 Directly under the figure that you multiply by.

16 We write down the figure on the right-hand side and carry the figure on the left-hand side.

17 By "carry" we mean the adding of the figure to the next result of multiplication.

18 The first figure of the multiplicand or multiplier is the one on the right-hand side.

19 Partial products.

20 Addition.



## RHyme FOR SUBTRACTION.

---

1. We are a rule most sad to state,  
    We never can be glad ;  
For we must always take away  
    Whatever can be had.
2. Now when we can't subtract,  
    We borrow what we lack,  
The *Minuend* lending us one,  
    If the *Subtrahend* pays it back.

*Or,*

- Now when we can't subtract,  
    To borrowing we confess,  
The next figure of the *Minuend*  
    Appearing as just one less.
3. Subtraction has companions three,  
    *Minuend, Subtrahend, Remainder* we see,  
The *Minuend*, as the greater, is known,  
    The less *Subtrahend* underneath is shown.
  4. The *Remainder* or *Difference*  
    Tells what is left,  
And shows where the answer  
    In *Subtraction* is kept.

5. Subtraction's sign is this —

It means that we take away,  
And when speaking of this level line,  
We always *Minus* say.

6. We are a rule most sad to state,

We never can be glad;  
So many never pay  
For the one that they have had.

*Or,*

We are a rule most sad to state,  
Oh, why! you'd never guess,  
'Tis just because some will not see  
The *Minuend's* figures less.

### REMARKS.

*a* The two parts of verses 2 and 6 illustrate the two different methods of subtraction.

(*b*) A little wooden wand gilded and trimmed with ribbons is very pretty used in the recital of "The Subtraction Rhyme."

## GESTURES FOR THE SUBTRACTION RHYME.

---

(a) In a standing position, with drooping heads, repeat sadly the first line of the first verse.

(b) Raise wand slowly with the left hand to the level of the eyes and place right hand on the end while repeating sadly the second line.

(c) Make a downward motion with the right hand on the words "*take away.*"

(d) Replace right hand on the wand on the word "*had.*"

### 2ND VERSE.

(e) Make a downward motion of the right hand on the word "*borrow.*"

(f) Raise the wand above the level of the eyes on the word "*minuend.*"

(g) Lean toward the right, raising the forefinger of the right hand on the word "*one.*"

(h) Wave the right hand under the wand on the word "*subtrahend.*"

2ND PART OF 2ND VERSE.

(i) Place both hands on the wand while repeating the first line.

(j) Make a downward motion with the right hand on the word "*borrowing.*"

(k) Point to the wand with decision on the word "*figure.*"

(l) Raise the forefinger of the right hand on the word "*one.*"

3RD VERSE.

(m) In an erect standing position with hands at the side, the wand being held in the left, repeat earnestly the first line of the third verse.

(n) Raise the wand with both hands to above the level of the eyes on the word "*minuend.*"

(o) Lower the wand to the level of the eyes on the word "*subtrahend.*"

(p) Lower the wand to the level of the knees, at the same time bending the body and stepping back with the right foot on the word "*remainder.*"



(r) Raise the wand gracefully with the left hand to above the level of the eyes, at the same time bending the body toward the left, on the word "*minuend.*"

(s) Wave right hand under the wand, on the word "*underneath.*"

#### 4TH VERSE.

(t) The same as gesture *p* and droop the head.

(u) Raise the head on the word "*answer.*"

(v) Make a graceful bow, bringing the right foot back on the word "*subtraction.*"

#### 5TH VERSE.

(w) Hold up the wand with both hands on the word "*sign.*"

(x) Make a downward motion with the right hand on the words "*take away.*"

(y) Replace right hand on the wand on the word "*line.*"

(z) The same as gesture *v* on the word "*minus.*"

#### 6TH VERSE.

(1) The same as gestures (a) and (b).

(2) Shake the head on the words "*so many.*"

(3) Stamp with the right foot on the word "*never.*"

(4) Bending the body gracefully to the left, raise the forefinger of the right hand on the word "*one.*"

2ND PART OF THE 6TH VERSE.

(5) The same gestures as *a* and *b*.

(6) Bend the body gracefully to the right, place the wand against the right cheek on the word "*whip*."

(7) Wave the left hand to the audience on the word "*some*."

(8) Lift up the wand gracefully on the word "*minuends*."

(9) The same as gesture *v* on the word "*less*."

RHYMES FOR SUBTRACTION.

---

(a) Subtraction is no process new,

'Tis finding the difference between numbers two.

(b) If the *Minuend* is in sight,

Subtract to get the answer right.

(c) If *Subtrahend* and *Remainder* before you come :

Carefully seek to find their *Sum*.

## RHYMES FOR DIVISION.

---

- (a) Division can also three names send:  
*Divisor*, *Quotient* and *Dividend*;  
The *Quotient* is the answer true,  
Divide to get it you must do,  
The *Divisor* is what you divide by,  
The *Dividend* to divide you try.

## HOW TO PROVE DIVISION.

---

- (a) Prove *Division* this easy way,  
The *Divisor* times the *Quotient* say;  
Add in the *Remainder* if any you see,  
The result the *Dividend* ought to be.



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now the effect,  
and we should  
think felt it too,  
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*We will do better than the cheapest and the  
best on them.*

TELEPHONE 109

# Arithmetical Rules in Rhyme.

BY MISS LIZZIE STANLEY MARTYN.

PUBLISHED AND FOR SALE BY PETER PAUL & BRO.  
BUFFALO, N. Y.

Copies of Testimonials received.

BUFFALO, N. Y., June 2 1891.

*Miss Lizzie Stanley Martyn:*

I have examined your little work entitled "Arithmetical Rules in Rhyme" and think it is well named. It is "catching," and I believe will supply a need long felt in the school room. It makes the study of numbers attractive because any rule coupled with a rhythmic "Jingle" is always long remembered.

Most respectfully,

J. F. CROOKER,  
Superintendent.

BUFFALO, June 16, 1891.

*My dear Miss Martyn:*

I take great pleasure in bearing testimony to the excellence of your little book. We have made a practical use of it in the fourth grade of our school and have clearly demonstrated its usefulness, particularly in problems involved in sodding areas, walling excavations, planing rooms and laying carpets. The jingling rhyme accompanying the solution of problems makes the task both of teacher and pupil easier. To say that "it fills a long felt want" is only one way of expressing our appreciation of the originality of your work.

Very sincerely yours,

MARGARET CARR,

Dep't Principal Grammar  
School No. 35.

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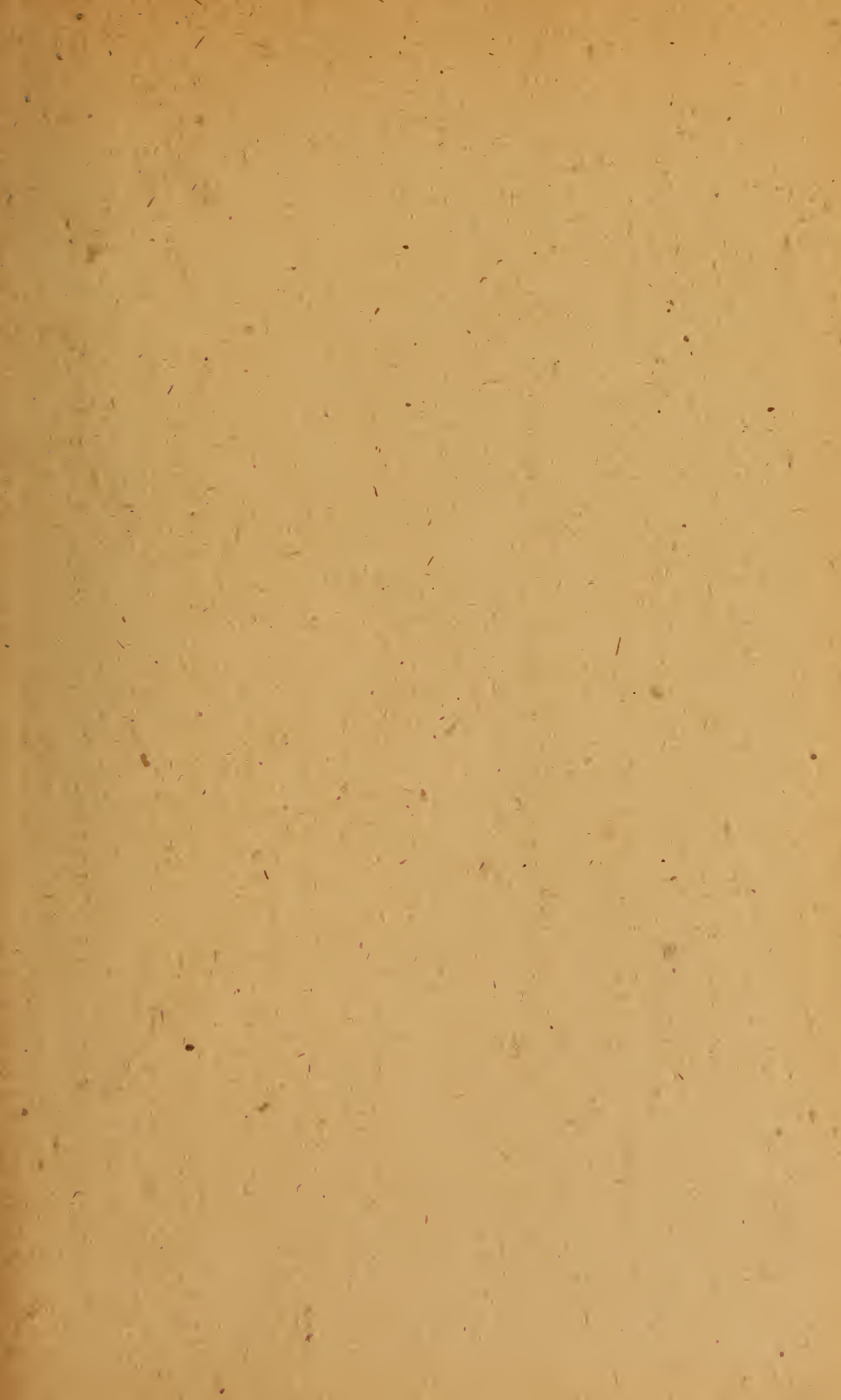
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